the Mayor at the Buckingham Palace Hotel on Saturday, when they discussed with him the preliminary arrangements and provisionally fixed September 24, 25, and 26 for the meeting, which will be the first held by the Institute in that town.

IN the annual report of the Deputy Master of the Mint, issued last week, we find some remarks on several points of scientific interest more or less intimately connected with the work of minting. Among these may be mentioned the adjustment of blanks by electrolytic agency, to which attention had been directed in former years. The process, originally advocated by Mr. Roberts, the chemist of the Mint, has already been employed on a large scale in the Indian Mint. The question of the change in the density of a metal by annealing is one of some importance in the operations of minting. The experiments commenced in 1877 showed that the effect of even moderate temperatures was appreciable, and the results of their continuation are given by Mr. Roberts. In connection with this subject, Mr. Fremantle remarks that it is interesting to turn to such experiments of M. Tresca on the flow of solids as have special reference to mint work, and to those which have been undertaken in the English Mint on the flow of molten metals through capillary tubes. It is hoped that the latter may ultimately throw light on the phenomenon of liquation.

THE *conversazione* of the Society of Arts will be held in the South Kensington Museum on June 25.

THE members of the International Telegraphic Conference were entertained at dinner on Tuesday night, and last night a *conversazione* was held in connection with the Conference. The labours of the Conference have been chiefly administrative and financial.

WE learn from the *Colonies and India* that rich deposits of gold have been discovered in various parts of Nova Scotia, where its existence has hitherto been hardly suspected. The most important discovery made has been near Bannockburn, in the township of Madoc, where a large nugget of gold of fine quality was recently found, and an extensive gold field is being opened out. Coal and iron are also plentiful in the province.

THE additions to the Zoological Society's Gardens during the past week include an Indian Antelope (*Antilope cervicapra*) from India, presented by the Hon. A Greville, 60th Rifles; a White-whiskered Paradoxure (*Paradoxurus leucomystax*) from the East Indies, presented by Mr. Carl Bock; two Common Paradoxures (*Paradoxurus typus*) from India, presented by Mr. G. Bradbury; a Common Magpie (*Pica caudata*), British Isles, presented by Mr. J. Loraine Baldwin, F.Z.S.; a Laughing Kingfisher (*Dacelo gigantea*) from Australia, presented by Mr. E. Hawkins; a Tuberculated Lizard (*Iguana tuberculata*) from the West Indies, presented by Dr. A. Stradling; a Caspian Ouaran (*Psammosaurus caspicus*) from Persia, presented by Commander J. Pratt, s.s. *Java*; a West African Python (*Python sebæ*) from West Africa, presented by Mr. G. H. Garrett; five Climbing Anabas (*Anabas scandens*) from India, presented by Mr. A. F. Dobson; a Tamandua Anteater (*Tamandua tetradactyla*), a Sun Bittern (*Eurypyga helias*) from South America, a Black-eared Marmoset (*Hapale penicillata*), a Brazilian Cariama (*Cariama cristata*) from South-east Brazil; a Crested Screamer (*Chauna chevaria*) from Buenos Ayres, a Daubenton's Curassow (*Crax daubentoni*) from Venezuela, a Negro Tamarin (*Midas ursulus*) from Guiana, a Spotted-billed Toucanet (*Selenidera maculirostris*), three Violet Tanagers (*Euphonia violacea*), two Saffron Finches (*Sycalis flaveola*), a Pileated Finch (*Coryphospingus pileatus*) from Brazil, a Great American Egret (*Andea egretta*), a Red and Yellow Macaw (*Ara chloroptera*) from South America, deposited; a Black Hornbill (*Buceros atratus*) from West Africa, a Green-winged Trumpeter (*Psophia viridis*) from Brazil, a Common Crowned Pigeon (*Goura coronata*) from New Guinea, two Orinoco Geese (*Chenalopex jubata*) from South America, six Melodious Finches (*Phonipara canora*) from Cuba, purchased; two Geoffroy's Doves (*Peristera geoffroii*), two Yellow-legged Herring Gulls (*Larus leucophæus*) bred in the Gardens.

THE RECENT HONORARY DEGREES AT CAMBRIDGE

IT may interest our readers to see the terms in which the Public Orator of Cambridge University spoke of the eminent men of science on whom the degree of LL.D. was conferred on June 10, as we announced last week. Mr. Sandys spoke as follows of Sir William R. Grove:—

Iuris initium a natura esse ductum auctore Tullio accepimus; iuris peritiam summam cum intima rerum naturae cognitione esse consentaneam, non modo Baconis nostri exemplo confirmatum est, sed huius quoque iudicis auctoritate defenditur. Magnum profecto rerum naturae amorem testatur oratio illa, qua tredecim abhinc annos societatis Britannicae scientiarum finibus proferendis annui praesidis munus auspicatus, in universa rerum natura ordinem quendam serie perpetua continuatum inesse docebat; testatur oratio illa altera plusquam triginta abhinc annos primum edita, qua primus indicavit lucem, calorem, vim electricam, vim magneticam, mutuam rerum quae dicitur affinitatem, ipsum denique motum, omnes alium ex alio posse generari, omnes necessitudine quadam inter se aptos et connexos esse, "ostendens" (ut Lucreti verbis utar)

> corpuscula materiai
> ex infinito summam rerum usque tenere
> undique protelo plagarum continuato.

Quod si ipse continuo tenore totam tanti ingeni vim rerum naturae cognoscendae intendisset; ille profecto qui luci electricae novum splendorem addidit, talium rerum obscuritati etiam maiorem lucem attulisset. Ceterum ille qui non modo legum scientiam sed scientiarum quoque leges optime interpretatus est, iure optimo legum doctor hodie creabitur; duplicis palmae laudem meritus, vestro omnium plausu iure excipietur Wilelmus Robertus Grove.

In introducing Dr. William Spottiswoode the Public Orator said:—

Societatis Britannicae scientiarum finibus proferendis praeses ille quem Regiae quoque Societatis praesidem hodie salutamus, fines quam amplos mathematicorum regno assignaverit, meministis omnes qui anno proximo orationem illam Dubliniensem audivistis. Imperium neque temporis neque spatii finibus terminatum illis dedit quos nonnunquam iuvat quasi oceani infiniti propter litora calculos numerare, nonnunquam in purum illud caelum, regionem illam inexplicabilem evolare, ubi spatium multiplex extenditur, ubi nodi tantum abest ut solvi ut ne necti quidem possint. Ipse ne Europae quidem philosophorum finibus contentus, Indorum quoque doctrinam mathematicam et antiquam linguam sacram exploravit; Asiae et Europae confinia bis lustravit, lustrata litteris mandavit. Populi in usum, ordine quam lucido lucis et coloris leges ipse illustravit; quot aliorum libros e prelo suo regio in lucem emisit, et sua et nostra cum Academia privilegiorum communium iure adhuc aliquatenus coniunctus; quanta denique liberalitate, et ministrorum suorum et populi universi liberaliter educandorum causa, pro virili parte laboravit. Ut viro integerrimo, titulis plurimis aliunde cumulato, nostri quoque tituli mantissa accedat, duco ad vos Wilelmum Spottiswoode.

Of Prof. H. J. S. Smith he said:—

Pariter iniquum esse existimavit Aristoteles ab oratore rerum omnium rationes accuratas exigere, atque mathematicum ad persuadendum apposite dicentem tolerare. Atqui ipse exemplar egregium μαθηματικοῦ πιθανολογοῦντος libenter admiratus esset, si in senatu Oxoniensium flumen orationis aureum fundentem hunc geometriae professorem audire potuisset, qui nomine duplici, et linguarum antiquarum et scientiarum mathematicarum peritia, cathedra illa dignus est quam Savilius ille, et Chrysostomi editor et interpres Euclidis, primus occupavit, occupatam annuo reditu in perpetuum ornavit. Tertii quidem ordinis linearum enumerationem Newtonus ille noster olim Latine conscripsit, hic autem, quarti ordinis lineis eadem lingua descriptis, e certamine toti Europae ab Academia Berolinensi proposito, duplicis palmæ particeps discessit. Quanta igitur spe et expectatione libros illos de recentiore quae dicitur geometria, de subtilioribus numerorum

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proprietatibus, plusquam Horatianum annorum numerum huius intra scrinia clausos, iamdudum flagitamus; quos, uti par est omnibus numeris absolutos, aliquando prodituros esse speramus. Interim in negotiis Academicis singulari urbanitate diu versatus, nunc non modo collegio augurum Britannicorum qui caeli praesagia observant praesidet, sed septemviris quoque Academiae Oxoniensi legibus conscribendis ascriptus est. Academiae illius pulcherrimae inter decora diu numeretur, diu Platonis praecepto obsecutus videat ut *οἱ ἐν τῇ καλλιπόλει* geometriam nequaquam neglegant. Duco ad vos Henricum Stephen Smith.

Of Prof. Huxley the Orator spoke thus:—

Academi inter silvas qui verum quaerunt, non modo ipsi veritatis lumine vitam hanc umbratilem illustrare conantur, sed illustrissimum quemque veritatis investigatorem aliunde delatum ea qua par est comitate excipiunt. Adest vir cui in veritate exploranda ampla sane provincia contigit, qui sive in animantium sive in arborum et herbarum genere quicquid vivit investigat, ipsum illud vivere quid sit, quali ex origine natum sit; qui exquirit quae cognationis necessitudo, inter priores illas viventium species et has quae etiam nunc supersunt, intercedat. Olim in oceano Australi, ubi rectis "oculis monstra natantia" vidit, victoriam prope primam, velut alter Perseus, a Medusa reportavit; varias deinceps animantium formas quasi ab ipsa Gorgone in saxum versas sagacitate singulari explicavit; vitae denique universae explorandae vitam suam totam dedicavit. Physicorum inter principes diu honoratus, idem (ut verbum mutuemur a Cartesio illo cuius laudes ipse in hac urbe quondam praedicavit) etiam "metaphysica" honore debito prosecutus est. Illum demum liberaliter educatum esse existimat qui cum ceteris animi et corporis dotibus instructus sit, tum praesertim quicquid turpe sit oderit, quicquid sive in arte sive in rerum natura pulchrum sit diligat; neque tamen ipse (ut ait Aristoteles) "animalium parum pulchrorum contemplationem fastidio puerili reformidat," sed in perpetua animantium serie hominis vestigia perscrutari conatus, satis ampla liberalitate in universa rerum natura "humani nihil a se alienum putat." Duco ad vos virum intrepidum, facundum, propositi tenacem, Thomam Henricum Huxley.

Finally, among the scientific men who were honoured with the degree was Mr. H. C. Sorby, of whom the Public Orator said:—

Quam magna est rerum natura, in magnis quam immensa, in minimis quam magna. Quam multa miracula, antiquis ignota, illis nuper ostendit qui minuta curiositate arcana illa quae oculorum aciem fugiunt, instrumentorum novorum auxilio perscrutantur. Hic autem ille est qui, et terrestrium et de caelo delapsorum lapidum investigandis elementis primis, primus inter Britannos talium instrumentorum usum accommodavit. Nuper societatis geologicae praeses electus, annorum triginta labores oratione cumulavit in qua vere marmoreum sibi monumentum exegit. Illud vero acutissimum quod crystallis etiam minutissimis exploratis in quibus (ut fit) pars altera est aquae plena, altera aëris quoque vacua, olim indicavit qua potissimum caloris temperie inclusa illa aqua totum illud vacuum implere, quo potissimum rerum statu saxum illud, quondam ignibus prorsus liquidum, primum durescere potuisset. Scilicet crystallum illud (ut Claudianus ait)

> non potuit toto mentiri corpore gemmam;
> sed medio mansit proditor orbe latex.
> auctus honos; liquidi crescunt miracula saxi
> et conservatae plus meruistis aquae.

Suo phaselo vectus quot maria mox lustrabit, in terra iam pridem unum saltem Argonautarum, qui terram oculis penetrabat, eatenus aemulatus, quod in intima saxorum materia perspicienda, ipse oculo potuit "quantum contendere Lynceus." Duco ad vos Henricum Clifton Sorby.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE

THE Clothworkers' Company have voted 3,500*l*., over and above 10,000*l*. previously voted, to cover the complete cost of the site, building, furnishing, and fitting with all necessary appliances the textile industries and dyeing instruction departments of the Yorkshire College, Leeds, and they have further agreed to maintain the building and its operations in full effect without extraneous or adventitious aid, for a period of five years as from January 1 next, at a cost of 1,200*l*. per annum. This increased annual subvention has been necessitated by the addition of instruction in dyeing and applied chemistry connected with the finishing of textile fabrics. The new buildings will be completed about October next.

THE following awards for proficiency in Natural Science have been made at St. John's College, Cambridge:—Foundation Scholarships to W. A. Forbes, Fleming, Hart; a Proper Sizarship to Samways; Exhibitions to Lister, Samways, Stuart (already scholar), and Weldon. Forbes received also a Wright's Prize and augmentation of the year's emoluments to 100*l*. The Open Exhibition was awarded at Easter to Edmunds (University College, London), and a Second Exhibition to T. Roberts (University College, Aberystwith).

THE amended report of the Cambridge Botanic Garden Syndicate has been confirmed so far as relates to the stipend of the curator, which is fixed at 150*l*., he not to take private pupils, and to be allowed 25*l*. per annum for the rent of a house until one is provided in the garden.

PROBABLY the oldest teacher in existence is the venerable M. Chevreul. This eminent chemist, who is about ninety years of age, has been advertised as lecturer on chemistry in the Paris Museum. The first part of his lectures will be devoted to the subject of contrast of colours. M. Chevreul enjoys excellent health, and exhibits admirable bodily as well as mental activity.

THE fourth centenary of the foundation of the University of Copenhagen was celebrated in that city on the 4th inst. No less than 4,000 people took part in the celebration, including the Royal family and all the highest civic and military authorities. The festive address was delivered by the Rector Magnificus, Dr. Madvig.

SCIENTIFIC SERIALS

Bulletin de l'Académie Royale de Belgique, No. 4.—Besides communications on the blood of the lobster (Fredericq), displacement of spectral lines of stars (Spee), and perpetual motion (Plateau), we have here a paper by M. Fredericq on the theory of respiratory innervation; he is led to regard the spinal cord as containing an inspiratory centre and an expiratory centre, chloral acting to paralyse the former.—M. van der Mensbrugghe contributes a paper on new applications of the potential energy of liquid surfaces, dealing with the principal cause of loss of charge by water-jets, origin of the energy of motion acquired by waves of the sea, cause of production of bars at the mouths of certain rivers, and origin of the force of the Gulf Stream.—M. De Selys Longchamps communicates the additions to the synopsis of the Calopterygines.

Atti della R. Accademia dei Lincei, April.—We note here the following:—Influence of boric acid on acetic fermentation, by Prof. Herzen.—Distribution of subsoil water in the Agro Romano, and its influence in production of malaria, by S. Tommasi-Crudeli.—On giant-cauldrons, by S. Botti.—Geological studies on the northern Graian Alps, Italian side, by Prof. Baretti.—On the supposed identity of columbine with limonine, by SS. Patermo and Oglialoro.—On the kinzigite of Calabria, by Prof. Lovisato.—New rock-specimens from Calabria, and remarks on the serpentine formation of that region, by the same.—On the geodetic line; third general problem; analysis of spheroidal triangles, by Dr. Wurterberg.—On observations of the horizontal diameter of the sun, made at the Royal Observatory of the Campidoglio in 1878, by S. Respighi.—Catalogue of algæ gathered during the cruise of the cutter *Violante*, and especially in some small islands of the Mediterranean, by S. Piccone.—On the motion of a simple pendulum in a railway carriage, by S. di Saint-Robert.—On the difficulty of obtaining sulphuric acid perfectly free from arsenic, on the mode of obtaining it, and on some things relating to arsenic, by S. Selmi.—On the miocene strata of Siena, and considerations on the upper miocene.—On the crystalline form of anglesite of Sardinia, by S. Sella.—Obituary notice of Volpicelli, with list of published works.

Journal of the Franklin Institute, May.—Limit of efficiency in heat-engines, by Prof. Thurston.—The driving-power of leathern belts, by Mr. Cooper.—On the initial effect of the earth's rotation on the free pendulum, by Prof. Tobin.—On the measurement of tidal heights, by Mr. d'Auria.

THE *Verhandlungen des Vereins für naturwissenschaftliche Unterhaltung zu Hamburg* (vol. iii. 1876) contain, amongst other less important ones, the following papers:—On the manners and customs of the Hamrán tribe, by M. Eckardt.—On the

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